

# The Canadian Entomologist.

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## ENTOMOLOGICAL NOTES.

PAPER NO. III.

BY W. SAUNDERS, LONDON, ONT.

Several years ago it occurred to me that a knowledge of the earlier stages in the lives of some of our Diurnal Lepidoptera, might possibly be arrived at by obtaining eggs from impregnated females in captivity. My experiments began with the *Hesperidæ* as offering the greatest probability of success. As many females as could be procured (beaten ones preferred, as the likelihood of their impregnation was greater) were confined in separate boxes, some with glass tops admitting light, others darkened. My success was greater than I had anticipated, but none attended the use of boxes where much light was admitted. Whether the failure in the latter case was really due to the admission of light, I am not prepared to say; the number of glass covered boxes used was not proportionally large nor was their use long continued.

I obtained eggs from *Hesperia wamsutta*, *mystic* and *hobomok*, and thus encouraged, the experiments were gradually extended to all the Diurnal Lepidoptera within reach, resulting in success with *Papilio turnus*, *Colias philodice*, *Argynnis myrina*, *Argynnis bellona*, *Polyommatus epixanthe*, *Polyommatus thoe*, and *Thecla inorata*, G. & R. (*falacer* Bois. plate). In several instances the eggs were not fertilized, still I regard the results achieved as very encouraging, and feel persuaded that by continued perseverance, all that is wanted to complete the history of our butterflies may in this manner be obtained.

*Papilio turnus*.—A beaten female was captured in the beginning of July, 1865, and confined in an empty Seidlitz powder box; on the second or third day of captivity it was observed that the insect had deposited two eggs, and was still living; the next morning a third was observed and the butterfly found dead. The eggs were between one twentieth and one twenty-fifth of an inch in diameter, subglobular, flattened at the place of attachment—color dark green, surface smooth, without reticulations, but showing a few small irregularly distributed dots under a magnifying power of forty-five diameters. On

the 20th of July, one of them began to change color, growing darker; on the 21st it became very dark, and on the morning of the 22nd the young larva was hatched. The second egg was then deepening in color and produced the larva on the 23rd. The remaining egg was unproductive and after a time began to shrivel up.

Appearance of larva fresh from the egg.—Length one tenth of an inch. Head large, bilobed, black. Body black, roughened with small brownish black tubercles—second segment\* elevated or thickened and of a dull glossy flesh color, with a prominent fleshy tubercle on each side, a patch of white on seventh and eighth segments, wide anteriorly, pointed behind. A dull flesh colored dorsal streak on fourth and eleventh segments. Twelfth segment with a pair of fleshy tubercles, rather prominent, but not so large as those on second. Both those on second and twelfth have several short whitish hairs proceeding from them. Under surface brownish black, feet and prolegs of the same color.

These larvæ I failed to rear. Having no trees of the wild cherry within a convenient distance, I thought they might be fed with leaves from a cultivated variety, on which specimens taken nearly full grown had been previously fed. It appeared however that the leaves were much tougher than those of the native species, so much so that the infantile jaws of these diminutive larvæ failed to make any impression on them, and before the mistake was discovered and the proper food supplied, they were weakened past recovery and died.

*Colias philodice*.—A female was captured on the 18th of July and placed in a large sized pill box. The box was examined every day until the 23rd, and up to that date no eggs were deposited. It was not looked into again until the morning of the 26th, when five eggs were observed sticking to the sides of the box, and the parent dead. From the stiffness of the body of the dead insect, I thought that they were probably deposited on the 24th.

† The eggs were about one twenty-third of an inch long, much elongated, tapering at each end, with twelve or fourteen raised longitudinal ribs, with smaller cross lines in the concave spaces between them. The cross lines were not always regular, sometimes so, at other times two or three in a row were placed somewhat diagonally. Color when first deposited, pale lemon yellow, changing in three or four days to a pale red, then gradually to bright red, and from that to dark brown, just before the larva made its appearance. Four of the eggs hatched on the 30th and the remaining one on the 31st.

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\* In these descriptions the head is regarded as the first segment, making the total number thirteen.

† Some of the descriptions following have already appeared in Dr. Packard's book—"A Guide to the Study of Insects"—but for several reasons it has been thought desirable to publish the whole of the information gained by these experiments in an aggregate form.

Appearance of the larva fresh from the egg.—Length one twelfth of an inch. Head black with a few short whitish hairs, some of them rather thick and fleshy looking. Body dull yellowish brown, with longitudinal rows of hairs, similar to those on the head; those on the second segment and immediately behind the head, longer than the others. Hairs on body very short, whitish, semi-transparent, thick, some of them more like short tubercles than hairs. The descriptions of larvæ of this age, as well as of the eggs, were all taken under a magnifying power of forty-five diameters.

Appearance when more than half grown.—Length five eighths of an inch. Head dark green, slightly downy with minute hairs. Body of the same color, with the same downy look, occasioned by a great number of thickly set short hairs. The body is also dotted with points of a slightly paler hue. A yellowish white stripe on each side close to under surface. Beneath slightly paler than above, feet and prolegs of the same color.

The full grown larva differs from the foregoing only in size, being about one inch long, and in having an irregular streak of bright red, running through the whitish stripe close to under surface.

My specimens were fed on clover. I have since found this larva feeding on the wild lupin (*Lupinus perennis*) and also on the cultivated pea. It is not unlike a sawfly larva in form and action, feeding on the upper surface of the leaves and twisting its body into a coil when disturbed.

Pupa.—Length seven tenths of an inch, girt with a silken thread across the middle; greatest diameter about the sixth segment. Head case pointed, with a purplish red line on each side, running to the tip and margined behind with yellow. Body pale green, with a yellowish tinge and a ventral line of a darker shade, formed by a succession of minute yellowish dots—a yellowish stripe along the sides of the five hinder segments. Beneath on the seventh, eighth and ninth segments, is a blackish brown line on each side, deepening in color about the middle of each segment, and a dorsal line of dark green about the same length.

On the eighth day the color of the wings began to show underneath, the pink fringe prominent and the discal dots visible, and on the ninth and tenth days the imago appeared.

*Argynnis myrina*.—A female specimen, somewhat beaten, was captured on the 20th of June, and confined in a large pill box. One egg was deposited on the 22nd or 23rd, and five more on the 24th, all attached to the sides and bottom of the box. The eggs were pale green, elongated, in shape something like an acorn, base smooth and convex, circumference striated longitudinally, with about fourteen raised striæ, which were linear and smooth, spaces between, about three times wider than the striæ—depressed, concave in the middle, and ribbed by a number of cross lines, fifteen to twenty between each striæ

distinctly indented. The egg was contracted at the apex, the striæ protruding at the tip all around, beyond the body of the egg. The eggs became much darker in color before the larvæ appeared.

The larva hatched in six or seven days, and when fresh from the egg was about one-tenth of an inch long. Head medium sized, black and shining. Body above dark brown with transverse lines of a paler color, especially on the anterior segments; and thickly covered with hair-like spines of a pale brownish color.

Between the first and second moult its length was one-fourth of an inch. Head bilobed, shining, black and hairy. Body above greenish black, the greenish tinge most apparent on second and third segments, with a few small yellowish dots along each side and transverse rows of strongly elevated black tubercles, emitting numerous short, black, hair-like spines. Under surface similar to upper; feet black and shining; prolegs black, tipped with a paler hue.

After the second moult there were two fleshy tubercles on second segment much longer than the others, three or four times their length, and covered throughout with small hair-like spines. The yellowish spots along the sides of body assumed more of an orange tint, and one or two faint longitudinal streaks of the same color appeared along the sides close to under surface. Between the rows of large raised tubercles were many smaller ones, also black, appearing but slightly raised.

August 7th. Appearance of the full-grown larva.—Length, eight-tenths of an inch. Head slightly bilobed, black, shining, covered with short fine black hairs.

Body above dark greyish brown, beautifully spotted and dotted with deep velvety black, second segment with two long fleshy horns, yellowish white at base, black above, covered with minute blackish hair-like spines. The third and fourth segments have each four whitish spines tipped with black, those on sides are placed on the anterior portion of segment, those above about the middle. All the other segments have six whitish spines, excepting the terminal one, which has four. All the spines have fine branches of a black or brownish-black color, and are about one-third the length of the fleshy horns on second segment. A pale line extends along each side from fifth to terminal segments, close to under surface. The under surface is brownish black, darker on anterior segments; feet black and shining; prolegs brown, with a shining band of brownish black on the outside.

The chrysalis is about half an inch long, of a pale grey color, dotted and streaked with black. At the tip, beyond the base of antennæ, are two large conical tubercles. On the thorax, also, are several smaller pointed tubercles, and a double row along the abdomen of a similar character, those on the third

abdominal segment being larger than the other. The duration of the pupa stage was ten or eleven days.

Since the imago produced were under the average size, something must be added to the length and diameter of the larva and pupa described.

*Argynnis bellona*.—The eggs obtained from this species were unimpregnated, and soon shrivelled up. In size and color they were similar to those of *myrina*, but were not examined under a magnifying power.

*Polyommatus thea*.—These eggs were deposited by a beaten female about the 6th of July, 1868. The egg is nearly round, a little flattened at the apex, and flattened also at the base. Color greenish white, thickly indented; at the apex is a considerable depression, around which the indentations are small, but increase in size as they approach the base.

*Polyommatus epixanthe*.—About the 10th of July, 1868, twelve eggs were found attached to the lid of a small pill box, in which two females were confined. The egg is nearly round, slightly flattened at the apex, flattened also at the base. Color milk white, thickly indented, a deep depression at the apex, and around this a number of indentations, which are nearly uniform in size all the way to the base—in this latter respect differing from those of *thea*.

The eggs of both these species of *Polyommatus* remain as yet unchanged. There is no appearance of shrinking on any part of their surface; it is possible they may produce the larva in spring.

*Thecla inorata* G & R. (*Thecla falacer*, Boisd. plate).—About the middle of July, 1868, two eggs were deposited on the sides of a pill box. They were of a pale green color, nearly round, with convex apex, but flattened at the base, with a number of slightly raised longitudinal lines approaching each other near the tip. The depressions are without punctures. Each egg has a number of angular brownish spots distributed irregularly over its surface.

This box was overlooked for several days, and when examined again, the larvæ were found to have escaped and dried up for want of food.

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#### SPIDERS NESTS.

BY WM. COUPER, OTTAWA, ONTARIO.

The genus *Theridion* construct beautiful silken nests for the protection of their eggs. I have collected what I take to be the nests of three species in Canada. They are generally found under the bark of decayed forest trees. Another which I found on an old fence at Quebec, although not constructed of silk, its form, in my opinion, is sufficient to class it among the architecture of *Theridion*. One of these nests resembles that of *Theridion variegatum* Walck., of Europe. It is pyriform, having a diameter of  $\frac{3}{8}$ th inch, covered with strong, glossy, golden silk thread, evidently arranged for a two-fold pur-

pose—to allow a free circulation of air, and to keep off too much moisture from the eggs. This nest is suspended by a silken thread from the acute end generally in a cavity of the inner bark. It contains from seven to ten unattached eggs. When the young spiders attain the parent form, they issue from the nest by a small hole at the latter end, which was formerly made by the parent for the purpose of introducing the eggs. I cannot say that the Canadian spider, which formed the above cocoon is identical with the European *T. variegatum*, Walck. But in order to show that the architecture is the same, I quote from the *Entomologist Weekly Intelligencer*, April 26, 1856: "On the 13th inst. I found, under the bark of an old hornbeam, at Hainault Forest, a little spider's nest, about the size of a pea, shaped like a balloon, covered with flossy silk of a fine red-brown color, and containing seven pellets, which had free motion. It was supported on a flexible foot-stalk, being altogether nearly half an inch in length, and formed one of the prettiest objects imaginable.—J. W. DOUGLAS."

The second form of nest or cocoon was found attached to the exterior bark of a birch tree at Quebec. It is sub-spherical, and measures  $\frac{1}{4}$ th of an inch in diameter. The interior covering is composed of a fine flossy, white silk, covered with numerous irregular red brown threads, similar to those described on the former species. The spider is unknown to me, but from its form and material, I have no doubt of its belonging to the genus *Theridion*.

The third form of nest is still more remarkably beautiful, and undoubtedly the work of a species of *Theridion*. It is always found under bark of trees, suspended to a thread about an inch in length. Its shape is oblong, acute at both ends, and composed of white silk. Although the exterior is covered with a coarse coating of silken threads, it is so transparent that the eggs can easily be counted. I have found its architecture at Quebec and Ottawa, and I have a vague recollection of finding it at Toronto. Not having been successful in rearing this species, I shall be glad to receive any information regarding its habits.

The fourth nest was found attached to a fence at Quebec. Although I have some doubts regarding the authenticity of the architect, its form and the manner in which it was suspended are the only reasons for classing it near the above genus. The curious part of this little nest is that it is not constructed of silk, but formed of woody fibre taken from the weather-worn fence on which it was found. At first, I doubted that it was the work of an Arachnid, but on close observation, I detected the button of silk by which it was attached to the fence. Its form is spherical, measuring one-fourth of an inch in diameter. The pedicel is short, strongly made of woody fibre and silk, and it was firmly attached to the fence. This is the second instance that came under my observation of spiders using other material than silk to cover themselves while undergoing moult, or protecting their eggs when in the nest. I recollect

coming across a locality near Quebec, where a kind of long grass was growing. I noticed that the tops of several of the blades of grass were bent in a curious manner. This led me to open one of them, and in it and other specimens I found a spider undergoing moult. There was very little silk used in this form, which was constructed as follows: The spider first bent the top of a blade of grass downwards to a certain distance, attaching two of the edges together with silk; when it found this firm, it next proceeded to bend the remaining portion of the top upwards, thus inclosing itself in an oblong triangular cell, about an inch and a half long. This was indeed an ingenious contrivance to keep off its enemies.

I am anxious to obtain further information regarding the spiders that are found in this latitude, and which do not make use of silk, as a whole, to cover themselves or their eggs.

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#### HABITS OF MELITÆA PHAETON.

I notice in the ENTOMOLOGIST, No. 4, some remarks on *Melitæa Phaeton*. I think there is something exceptional in the habits of this species, and I hope the observations of your correspondents may give us light.

On 1st May, 1868, one of my young friends in this neighborhood brought me eleven chrysalids of *Phaeton*, part of which he had found suspended to fence rails. He reported the caterpillars as crawling along the rails, and that he had tried to bring me some of them, but before he could reach me (living four miles distant) all that he had taken had changed to chrysalids. I directed him to search for the food plant.

He returned two, or three times, and up to 18th May had brought me 80 chrysalids and but two larvæ, the latter of which changed within a few hours after I received them. My friend reported that he had taken part of the larvæ from the pawpaw bushes, on which they seemed to be crawling and not feeding, and could give me no more information on the subject. I was unable to go personally to the spot, but next May will endeavor to investigate fully. From all these chrysalids I scarcely obtained half a dozen butterflies, and part of these were cripples. They began to emerge on 18th May. These larvæ probably came from eggs laid the previous May or June, for there certainly is but one brood annually hereabouts. I have taken the butterfly in no year later than the end of June, and they could not have escaped my notice or the notice of some of my collectors here, if they had appeared later, or in a second brood. Vegetation with us is far advanced by 1st May, and by 1st April our shrubs are partly leaved out, so that larvæ emerging from the egg early in April would be at maturity early in May.



We have here several species of *Melitæa*--*Tharos*, *Batesii*, *Marcia*, *Harrisii*--all of which are double brooded, and which I believe pass the winter in the larval state. The habits of *Phaeton* seem to be generically different from these others. It belongs to the same group as *M. Arthemis*, of Europe, and Westwood describes this species as having its larvæ hatched in autumn, the young brood passing the winter under a common web, and as being full fed in April.

It is just possible that the eggs of *Phaeton*, although laid not later than June, may remain till October, and the young larvæ then be hatched, and that they spend the winter under a common web. But in this case they ought to be full fed by the middle of April, for they must be supposed to awake from their winter's sleep on the first warm days of spring, that is, not long after 20th March in this region.

At any rate here is a fair opportunity for investigation. One thing is noticeable about *Phaeton*, that wherever it appears at all, it is very local and in considerable numbers in its locality, which is rather favorable to the web theory. Twenty or fifty may be taken on one spot, which is not the case with any other *Melitæa* that I know of.

W. H. EDWARDS.

Coalburgh, West Virginia, Jan. 6, 1869.

[The above communication arrived too late for insertion in our last issue; we accordingly took the opportunity of submitting it to Mr. B. Billings, of Ottawa, the only Canadian Entomologist, so far as we are aware, who has met with any number of the insect in question. He writes as follows: "I found the insect in a certain spot in 1866 and 1868, and in October last searched for the larvæ without success. In my notice (CAN. ENT. No. 4, p. 28) I specified the plants of the locality pretty fully, and am certain that it is upon one of these that it feeds. I have compared the vegetation of my locality with that of Mr. Edwards, and have arrived at the conclusion that it feeds there upon a different plant, but closely related in its botanical affinities, or containing some property common to both. I find that there are but three or four species that would or could probably occur as common to the two localities, and these are herbaceous.

"Assuming that the larvæ were but partially grown at the close of autumn, and spent the winter in a state of lethargy under a web, it would not be consistent to suppose that they would be attached to a plant whose stem dies down at the close of the season, and would be covered with water in the spring. I know that in the case of eggs this would be different, as they have a greater power of resisting the effects of moisture.

"Mr. Edwards has promised to investigate the matter next May, and no doubt he will succeed. Vegetation commences with him about five weeks



earlier than at Ottawa, and as I intend to be on the alert myself, my work will be comparatively lessened if I could be favoured with the result of his observations. Not that I expect to find it upon the same plant, but from its affinities or properties I can easily select the plant.

"There is a matter connected with this insect that I do not understand, that is, the cause of its local restriction. I know that the generally received opinion is that the localization of certain insects, such as Diurnal Lepidoptera, depends upon the existence of certain plants equally circumscribed in their habits. In the present instance the principal part of the plants are more or less local, inhabiting bogs, marshes, and swamps; but the most rare are found in many similar places over the country, where this insect does not occur. What, then, can cause the restriction of this insect to a circumscribed spot? Certainly, not altogether because it contains a certain species of plant. I suspect rather that it is partly due to topographical and other conditions, which involves a problem not easily solved."

Since the above was in type, we observed in the *American Naturalist* June, 1868, p. 218, a note by Dr. Packard on this insect, in which he states that "the larva hybernates through the winter, and may be found in early spring feeding on the leaves of the Aster, the *Viburnum dentatum*, and the Hazel."—Ed. C. E.

#### PARASITES IN THE CELLS OF *VESPA MACULATA*, LINN.

I collected several specimens of the nests of *Vespa Maculata*, Linn., last fall, for the purpose of studying their architecture. The cells of two nests carried home in October were infested with Hymenopterous parasites; one of these, I suppose to be a *Microgaster*, issued from a covered cell a few days afterwards. I obtained five specimens from this cell,—in which they occupied a longitudinal position, and each separated by a thin cocoon. It is evidently a *Vespa* pupa parasite, as I noticed that several covered cells had been occupied by it.—Therefore it occurs to me that they issue about the beginning of September, and afterwards hibernate. The length of the parasite is five-sixteenths of an inch.

The second, which I suppose to be the *Vespa* larvæ parasite, occupies about two-thirds of the open cells of the wasp. Their exterior cocoons are chestnut colored, and of a triangular shape, occupying the sides, near the bottom of the cells, where, in many cases, there are two parasite larvæ covered by one exterior cocoon, while each larva is enclosed interiorly in a strong oblong silken cell. The cells containing these parasites have been kept in a warm room since last October, and although the larvæ are quite active [Jan. 25th], no visible change appears to me to have taken place since the day they were

found. I describe these species in a paper on the Architecture of *Vespa Maculata* Linn, read by me a short time ago, before the Ottawa Natural History Society.

WM. COUPER, Ottawa, Ont.

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#### MISCELLANEOUS NOTE.

HAIR SNAKES.—One day last Fall, a friend of mine, on stepping from his front door to the floor of the verandah, trod inadvertently upon a large spider. On removing his foot he perceived something, not naturally belonging to the spider, wriggling about on the ground, and on a closer inspection he discovered two minute snakes; these he brought to me, and I found them to correspond exactly with the description of the *Gordius*. They were, each of them, about two inches long, although when twisted up, as they were in tight knots, they occupied but a very small space. Their size was that of a horse-hair; their colour dark brown, almost black, the extremities being even darker than the intermediate portion.

Have you ever met with an instance of the *Gordius* making the body of a spider its temporary *habitat*? They are fresh-water *Abranchiata*, but my friend's house being near the river may possibly account for the fact of their being found in the body of the spider.—V. CLEMENTI, North Douro, Ont.

NOTE BY ED. C. E.—We have never met with a *Gordius* parasitic in a spider, having generally found them in grasshoppers, crickets, &c., and one in a beetle; but we are not surprised to learn that a large spider—probably one of those so common under stones on the margin of rivers—should be so infested.

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#### NEW ENTOMOLOGICAL WORKS.

CATALOGUE OF THE ORTHOPTERA OF NORTH AMERICA, described previous to 1867. Prepared by Samuel H. Scudder. Washington: Smithsonian Institution, October, 1868. 90pp. 8vo. Price 75 cents.

The Smithsonian Institution has already given a great impetus to the study of many orders of insects in America by its publication of Catalogues and Monographs; it is now continuing the good work by the issue of the volume before us, which calls the attention of students and collectors to a hitherto much-neglected order. This Catalogue is an alphabetical list, according to genera, of all the species of Orthoptera which have been described by authors as inhabiting North America or the West Indies; while giving references to all the authorities for a species, it does not take any notice of synonyms, but merely reports upon the present state of knowledge of the order. The Institution proposes to publish Monographs of American Orthoptera and requests the assistance of specimens from any part of the Continent.

PACKARD'S GUIDE TO THE STUDY OF INSECTS. Part 5, January 1869. Price 50 cents.

This part contains a continuation of the order Lepidoptera, bringing down the account as far as the beginning of the *Geometridæ*. It is illustrated with two beautiful plates of *Telea polyphemus*, and about sixty wood-cuts. All our collectors of this favourite order ought to obtain at any rate the parts of this work that relate to it.

#### BOOKS RECEIVED.

*The American Naturalist*. Vol. I, No. 12, Feb. 1869. (Completing the volume).

*Le Naturaliste Canadien*, Bulletin des recherches, observations et decouvertes se rapportant a l'histoire naturelle du Canada. No. 1. Decembre, 1868. Quebec.

The first number of this new magazine, the prospectus of which we noticed in our last issue, is now before us. It consists of 24 octavo pages, with a wrapper, and is illustrated by a wood-cut of the Beaver (*Castor fiber*). Besides much other interesting matter it contains a description of a new species of Hymenoptera,—*Urocerus tricolor*, Provancher, which is stated to bear some resemblance to *U. Cressoni*, Norton.

The Editor, in his introductory remarks, states that there are about a million French-speaking inhabitants in the Dominion of Canada, and hence infers that the time has come when they should have an organ in their own language specially devoted to Natural History. We certainly quite agree with him, and trust that his enterprise will be so abundantly successful as to utterly confute those prophets of evil who venture to characterise it as a fool-hardy and ruinous undertaking.

*Proceedings of the Boston Society of Natural History*. Vol. XII, Dec. 2, 1868.

*Transactions of the American Entomological Society*. Vol. I. No. 2. Containing numerous descriptions of new species of Hymenoptera by Cresson and Norton; Lepidoptera by Edwards, Grote, and Robinson; Coleoptera by Horn, Le Conte, and Zimmerman; and two splendid plates of Lepidoptera. Among the descriptions of new species of this last mentioned order, we notice two from Canada:—*Plusia Mappa*, G. and R. taken by Mr. Bowles at Quebec, and *Thecla Ontario*, Edw., taken by Mr. Reed at Port Stanley. (O. E. No. 3, p. 21).

*The Canadian Farmer*. Toronto. January, 1869.

*The Maine Farmer*. Augusta, Me. Dec. 26, 1868; Jan. 2, 9, 1869.

*The Weekly N. Y. Sun*. New York. Jan. 27, Feb. 3, 10, 1869.

W. Weasley's *Collection of (21) Catalogues of Scientific Works, Philosophical Apparatus, etc.* 81 Fleet Street, London, Eng.

*The American Entomologist.* St. Louis, Mo. Feb., 1869.

### TO CORRESPONDENTS.

SUBSCRIPTIONS RECEIVED.—To Vol. I, from T. S. (per Mr. Reed); J. H. F., Detroit, Mich.; members subscriptions from W. O., and Rev. Prof. H., Toronto; N. H. O., Goderich; Rev. V. C., North Dourso; B. B., and T. R., Ottawa.

SHEET CORK.—We have now on hand a large supply of sheet cork imported from the English manufacturer. Ordinary thickness for cabinets, 16 cents per square foot, extra thick, 24 cents.

ENTOMOLOGICAL ANNUAL FOR 1868.—It is proposed, should sufficient encouragement be given, to publish a Year Book of Progress in American Entomology, to be edited by Dr. A. S. Packard, jun. Dr. J. L. Le Conte will contribute a chapter on the Coleoptera; Mr. S. H. Scudder, chapters on the Butterflies and Orthoptera; Baron R. Osten Sacken, a chapter on the Diptera; Mr. P. R. Uhler, a chapter on the Hemiptera and Neuroptera; and the editor expects to receive aid from other entomologists. It is hoped it will prove a useful hand-book to every one interested in the study of insects. It will be published in 12mo size in the spring of 1869. An edition of five hundred will be printed, provided three hundred names can be secured. Will entomologists desirous of aiding in the publication of such an annual, send in their subscriptions in advance, that the means of publishing such a useful book be afforded at the outset? Subscriptions, Seventy-five Cents a copy, received by W. S. West, Peabody Academy of Science, Salem, Mass.

THE CANADIAN ENTOMOLOGIST is published on the 15th of each month by the Entomological Society of Canada. In consequence of the new Postal Law, which requires pre-payment of all Periodicals after January 1, 1869, we are constrained to make a slight change in the rates of subscription, as follows:—

To members of the Society, gratis.

To non-members (in Canada) 56 cents per vol., post-paid; two copies to one address, \$1.

To subscribers in the United States, 62 cents per volume, free of Canada postage.

The ordinary U. S. fractional currency may be sent.

To subscribers in Great Britain, three shillings per volume, post-paid. The amount may be sent in stamps.

Extra copies 5 cents each, 50 cents per dozen.

The *American Entomologist* (\$1), and the *Canadian Entomologist* (56 cents), will be furnished, post paid, for one dollar and twenty-five cents (\$1.25) per annum.

N. B.—Correspondence is invited respecting the habits, localities, occurrence, &c., of insects, as this journal is intended to be a medium for the recording of observations made in all parts of the country; insects for identification will be gladly attended to and returned when desired. Any contributions to the publication fund will be thankfully received and gratefully acknowledged.

